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THE INTRODUCED TURTLEDOVES IN WESTERN AUSTRALIA

By ERIC H. SEDGWICK, Collic.

PART I

ORIGIN OF THE INQUIRY

Having observed Turtledoves in several localities from which they had not previously been recorded, L. E. Sedgwick submitted a note for publication in the *W.A. Naturalist*. It was then suggested that an inquiry be conducted to supplement the observations recorded in this note, so requests for further information on the species were circulated.

The following observers contributed material and will, hereafter, be identified by their initials only:

Don Calderwood (D.N.C.)
C. H. F. Jenkins (C.H.F.J.)
V. F. McDougall (V.F.McD.)
Eric H. Sedgwick (E.H.S.)
L. E. Sedgwick (L.E.S.)
D. L. Serventy (D.L.S.)
V. N. Serventy (V.N.S.)
Peter Slater (P.S.)
G. M. Storr (G.M.S.)
B. V. Teague (B.V.T.)
John Warham (J.W.)

As it happened, the Gould League of Western Australia had just previously (1955) initiated an inquiry into the distribution of the turtledoves, the results of which have been made available.

In addition, both Co-operative Bulk Handling Ltd. and the Fisheries Department have freely contributed valuable information.

In view of the sudden passing of one of the contributors, Brian Teague, at the time that this paper was being completed, it appears fitting to draw special attention to the very many meticulous field notes which appear under his name and particularly to his well-considered hypotheses relating to the nature of the spread of the Senegal Turtledove.

THE HISTORY OF THE SPECIES IN W.A.

The Senegal Turtle dove (*Streptopelia senegalensis*) is a native of Africa, Arabia, Palestine, Persia and India, and the Indian Turtle dove (*Streptopelia chinensis=suratensis*) is a native of Afghanistan, India, Ceylon, Assam, Malaysia and China.

Both turtledoves (vide Serventy and Whittell, *Birds of W.A.*) were "introduced from South Perth Zoological Gardens since 1898." Some details of this introduction are given in a letter to D.L.S. from Lt.-Col. E. A. Le Souef, dated April 27, 1936:

Re Indian and Senegal Turtledoves, I introduced them from the Melbourne Zoological Gardens, from memory about 1898 or 9. All my life I had been used to hearing them in the early mornings and I missed their note very much. In my opinion they are harmless, only eating a little seed and I have never seen a dove affected by stiekfast. If people objected to their eating fowl feed or garden seeds we always gave permission to shoot them, or otherwise destroy them. A few pairs have been sent to people in various parts of the country on request, but owing to mechanical transport they are not likely to follow the roads as in the old days of the horse. The Zoo, where they can obtain food, is their stronghold but I think they are less numerous than formerly. These two species are best fitted to live in contact with human beings. In Melbourne we tried several other kinds of doves, but boys, cats and hawks proved too much for them.

Apparently, for many years the doves did not spread far beyond the metropolitan area.

Senegal Turtledoves have proved by far the more enterprising. Northam appears to have been one of their earliest colonising ventures. The position at Kalgoorlie is obscure, but at least one of the two turtledoves gained a foothold there at a relatively early date.

C. F. H. Jenkins appears to have been the first observer to record an intensified colonisation. In his "Branch Report of the R.A.O.U. in W.A. for 1939-40" (*Emu*, 40: 391) he writes: "The Senegal Dove is steadily extending its range and is now met in various country districts. The spread has been most noticeable during the last five years or so. In the Report for 1940-41 he added: "... still steadily extending its range in various country districts," and again in the Report for 1941-42: "... are extending."

To the author it appears that this spread is still proceeding rapidly. The Indian Turtle dove has spread outward from Perth and has penetrated to a few country centres, mainly within 40 miles of the city.

THE NATURE OF THE SPREAD

The turtledoves, at least in Western Australia, thrive in the vicinity of habitations and tend to colonise towns, only rarely establishing themselves in purely rural areas. It is perhaps significant that individuals penetrate into "the bush" but apparently do not settle. The spread of the species has, therefore the appearance of a series of "hops" from one centre to another.

The following notes prepared by B.V.T. embody his observations on the spread of the Senegal Turtle dove:—

The Senegal Turtle dove (*Streptopelia senegalensis*) was an established species at Northam, York, Beverley, Brookton, Pingelly and Narrogin, when these towns first came under my observation in 1947.

The year 1952 was the commencement of a period in which the species thereafter was frequently encountered in open country between towns;

though still generally at rail sidings and homesteads, and never farther than a few chains from a major road or, more often, a railroad, and most frequently in the combined reserve of both. All rail sections along which the birds were noted were at the time, and indeed are still at the time of writing, being extensively used for the haulage of bulk grain, mostly wheat.

Publication of this paper may induce other observers to publish early records of this species' occurrence in country districts, when probably it will be evident that the spread of *S. senegalensis* is closely correlated with the advent in this State of the bulk handling of grain.

The silos are an almost constant source of easily procured grain, and the not inconsiderable amount spilled from passing trains onto the open railroads would prove a useful supply of food for migrating individuals. Members of the Order Columbiformes are frequently observed feeding along railroads, especially during extensive movements of bulk grain.

During April, 1956, a heavy transference of wheat from Bellevue and other silos to the port of Fremantle was in progress when, on April 23, an unusually heavy concentration of Columbine species was noted along the railway between Midland Junction and Perth. On this occasion there were hundreds of *Columba livia*, with *Streptopelia senegalensis* in second order of predominance, approximately 50 rising from between the rails near Guildford. *S. chinensis* was seen only in odd spots and in ones or twos. I was at that time quite familiar with the normal populations of these species along this section, having been traversing it twice a week at approximately 7.00 a.m. for the previous ten months.

In addition to food, a clear route through uncultivated areas would be provided by the railway reserves, which are frequently also closely associated with motor roads and their resultant clearing and further sources of cultivated grain and other foods.

A point in favour of this theory is that though the genus is obviously attracted to human settlements and activities, the lower South-West which produces little grain and is, excluding the metropolitan area, the State's most densely populated district, is not nearly as attractive to the birds as are the drier inland wheat producing areas.

Alternatively, climatic conditions or other phenomena would appear to have a major bearing on their evident avoidance of this area, as though a considerable portion of the State's bulk grain is hauled to the South-West port of Bunbury via the Narrogin-Collie and Wagin-Bowelling railways, the birds have not penetrated along these thoroughfares as is the case along the

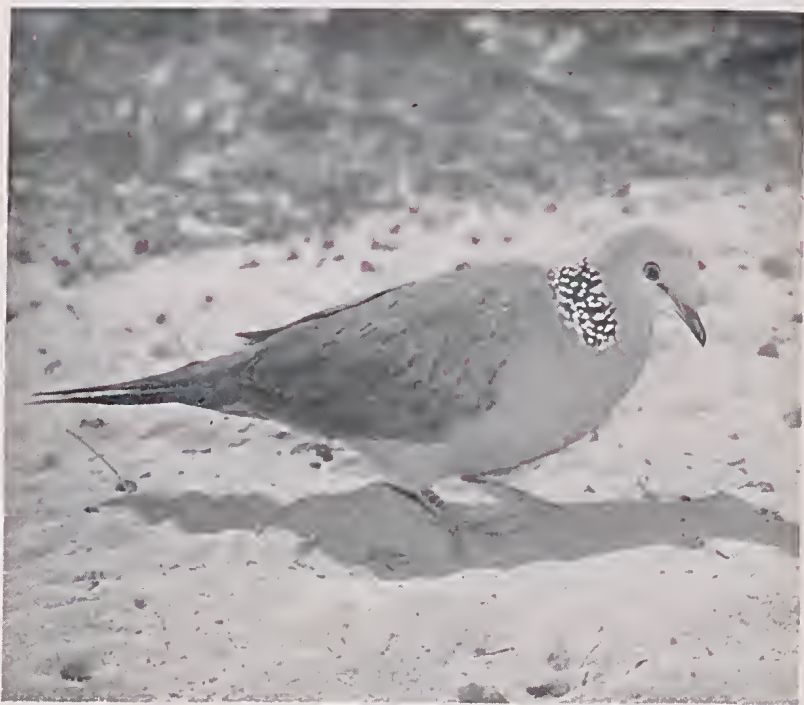


Fig. 1.—Indian Turtledove (*Streptopelia chinensis*).

—Photo John Warham



Fig 2.—Senegal Turtledove (*S. senegalensis*).

—Photo John Warham

Great Southern route.* The rail marshalling yards at Collie, from which centre the genus is absent, would serve as an excellent foraging place.**

In addition, the abundance of human settlement between Perth and Bunbury would obviate the necessity of migrating individuals traversing large tracts of virgin country, thus apparently making colonisation of this area somewhat simpler than in the inland districts which are more sparsely populated.

Bunbury is a large grain handling depot, and apart from climate, appears to the writer to be equally favourable to the genus *Streptopelia* as is Narrogin, which centre supports a heavy population of *S. senegalensis*; yet notwithstanding that this species has been present in the former town for some years, its numbers there have never attained any strength.

On March 29, 1957, I undertook a motor trip from Armadale to Bunbury for the purpose of taking a count of *Streptopelia* species and individuals. Not one bird was recorded during the whole journey, though the weather was ideal and areas which appeared especially suited to their requirements—main streets, public parks, school playgrounds, stands of pines, grain installations, railyards and wharves—were searched.

The species *S. senegalensis* has colonised the settlements along the Narrogin-Corrigin railway, yet to date has not ventured the short distance east of Wagin to the thriving wheat centre of Dumbleyung. However, though it has been present at the former town at least since early 1953, its numbers there have never nearly approached the healthy strength of the Narrogin colony.

On the other hand, as the rail and motor roads between Narrogin and Wickepin were under my frequent observation from 1947-56, and as no record for that area exists, it is considered likely that the spread to the towns of

* Later information obtained by B.V.T. from Co-operative Bulk Handling Ltd. indicates that with improved handling facilities at Albany the wheat traffic to Bunbury has diminished. It is not, however, confined to any particular period of the year. This last point is of importance when considering the availability of grain as a possible significant factor in determining the distribution of the doves.

** Since this was written the Senegal Turtledove has been recorded at Collie, but the one or two birds seen may prove to be stragglers.

Wlekepin, Yealering and Corrigin was via easterly routes (over which I never travelled) from the long established colonies at Brookton and Pingelly.

As a great deal of bulk wheat is annually hauled off the Wagin-Lake Grace line, and the adjoining country is now extensively cleared, further progress of the species in the area immediately east of Wagin is considered highly probable, and should be carefully recorded whenever possible.

The following information relating to the institution of bulk handling has been kindly supplied by Co-operative Bulk Handling Ltd.

In the Fremantle Zone five experimental silos were established in the Wyalkatchem area in 1931. This number was considerably increased in 1933. Bulk handling was introduced and became general in the Geraldton Zone (northern wheatbelt) in 1936, in the Bunbury Zone (Narrogin-Wagin districts) in 1937 and in the Albany Zone (extreme southern wheatbelt) in 1940.

In the distribution notes in Part II of this report the year in which a silo was established as a centre will be given.

It seems possible that improved food supply in the form of spilled grain could be one of the factors governing the increase of Common Bronzewing since the mid-thirties. This increase, however, does not appear to have been confined to the grain-producing areas.

HABITAT PREFERENCE

B.V.T.'s hypothesis that food is the critical factor governing the spread of the Senegal Turtle dove receives support from data collected by D.L.S. in Central Africa. He writes:

In May, 1956, I accompanied Mr. C. W. Benson of the Game and Tsetse Control Department of Northern Rhodesia on a foot safari from Chiengi (Lake Mweru) towards the southern end of Lake Tanganyika. The wooded areas were mostly myombo (*Brachystegia*) forest, in which were a few scattered native villages. Four species of turtle dove of the genus *Streptopelia* were encountered. The most abundant in the myombo forest was the Ring-necked Dove (*S. capicola*). In denser thickets this tended to be replaced by the Red-eyed Turtle dove (*S. semitorquata*), and a third species, the Mourning Dove (*S. decipiens*) preferred the Acacia country. The fourth species was our Senegal Dove (*S. senegalensis*), known in Africa as the Laughing Dove. In this country its habits were curiously similar to those in Western Australia. It was found only in the vicinity of native habitations, around the clearings where the natives had their little cultivation plots. Thus it had a broken distribution in the country through which I travelled, much like it now has in south-western W.A.

Replying to an inquiry as to whether conditions in our Wheat Belt would be comparable with the African habitat of the dove, he adds:

The country in which I found the Senegal Turtle dove would correspond more with the jarrah forest so far as woodedness is concerned, but it is more fertile. I think it is lack of suitable food that keeps the birds out of the forest here and compels them to be hangers-on of man.

The phenomenal spread of an allied species, the Collared Turtle dove (*Streptopelia decaocto*), described by James Fisher in *British Birds*, 46: 153, though not strictly comparable with the cases under consideration, makes very interesting reading and reveals striking parallels in the habits and habitats of the species. For example the European bird "seems emphatically disposed to nest in conifers . . .," a remark that could well be applied to the Indian and Senegal Turtle doves.

E.H.S. observed that in the course of the colonisation of Williams by the Senegal Turtle dove, each of the four stands of pines in the town was inhabited in turn. At Wooroloo, too, he

observed that the grove of large pines surrounding the public hall was favoured by the doves which appeared from time to time.

L.E.S. commenting on this (*in litt.*) remarked that the preference might be for deep shade rather than pines.

The same observer reports that, at Guildford Grammar School, the Senegal Turtledoves all seem to roost in a large solitary pine on a bank overlooking the river flats.

Limited evidence points to the pepper-tree (*Schinus molle*) being favoured in the drier areas (e.g. Kalgoorlie, Dargin).

Referring to the habitat preferences of the species B.V.T. comments:

There are few trees of any type around the environs of North Fremantle, Fremantle and Robbs Jetty, notwithstanding which however, there exists a strong population of *S. senegalensis*, especially round the rail marshalling yards and grain installations. At neighbouring Coogee, where a copple of dense *Callitris preissii* affords excellent cover but a dearth of food, the birds are by no means common.

S. chinensis is comparatively quite rare at Fremantle and adjacent suburbs.

Pine plantations within the metropolitan area, though far removed from any agricultural produce, are definitely not favoured habitat.

Most of the areas, such as along the Goldfields and Great Southern routes, where *S. senegalensis* has proved a successful coloniser, can never be claimed as the home of flora affording more than moderate shade.



Fig. 3.—Distribution of Indian Turtledove.

—Del. G. M. Storr.

At Narrogin, the rail marshalling yards, where some tons of wheat are spilled annually, are the focal point of *S. senegalensis*. Considerable dove activity is constantly evident in the stands of pine scattered round the town; however, as the railyards are skirted on the eastern side by a sizeable grove of *Eucalyptus rudis* growing in profusion along the adjacent creek, most of the birds when not feeding in the yard are to be located in these trees. I did not ascertain whether these eucalypts were used as night roosts.

Probably the chief attraction of heavily foliaged flora is the availability of natural nest platforms in the form of accumulated fallen leaf debris in forks, masses of tangled creeper, etc., which are eminently suitable sites for the ill-constructed nests of the genus. Lopped street trees, speeles of *Eucalyptus* in Narrogin and *Schinus molle* in York, have been noted as chosen nest sites. In each case the nest was located on the substantial platform or shallow fork formed by the lopping of the trees close to the main point of ramification. Protection from aerial predators was adequate, though shade afforded by the narrow foliage was by no means deep in the case at York.

During February, 1954, at a poultry farm on the outskirts of Narrogin, a nest of *S. senegalensis* was found in a thick cluster of suckers growing from a stump of *Eucalyptus redunca*. There was no really dense flora in the vicinity of the homestead excepting two Pepper Trees. This nest was built into the twigs and leaves, and all went well till ten days after the commencement of incubation, when on the evening of February 23, a high wind accompanied by rain lashed the supple saplings, sending both eggs to the ground. A similar case involving the same species was observed at Victoria Park, where the birds built in an almost leafless almond tree.

The chance of successful breeding would obviously be much enhanced if the birds are able to build in the usual position of a large fork or solid platform of fallen debris in some heavily foliaged tree.

S. senegalensis also exhibits a marked preference for dend *Acacia acuminata* and kindred speeles, especially those, as is particularly noticeable along the railway line near Beverley, that have died as the result of mistletoe infestation. Here is an instance in which there exists barely any shade. There are no heavily foliaged trees near the Beverley golf links or at Gilgering, at which places this behaviour was noted. No doubt the mistletoe clumps again form useful nest sites, and the grey coloration coupled with interlacing twigs would afford fair camouflage and protection from predators.

Considering B.V.T.'s observations in relation to the other facts obtained, it would seem that dense shade is not a critical factor in the distribution of *Streptopelia* but that they prefer dense cover, which is provided by conifers, for roosting and nesting and more open situations for resting and feeding.

Nevertheless the jarrah forest, which in many areas appears to provide these requirements, is apparently shunned and it would almost seem that the Senegal Turtle dove is adopting the distribution of certain native species—a pattern figured in *Birds of Western Australia*, Serventy and Whittell, fig. 9, p. 57.

No information relating to the water requirements of the turtle doves has come to hand but bearing in mind the habit of doves and pigeons in general it is reasonable to assume that frequent access to water is essential.

HAZARDS TO TURTLEDOVES

L.E.S. considers accidental deaths possibly a significant factor in controlling numbers in the metropolitan area—he has found a considerable number killed by flying into power-lines, moving cars or plate glass windows.

E.H.S. found a Senegal Turtle dove lying beside a house in Bassendean and assumed it to have been killed by flying into the building.

At Wooroloo, he was brought a dead dove of the same species which had been seen to cross the railway line in front of a moving train and then double back and strike it.

On the other hand B.V.T. reports that apart from nesting casualties he has only one record of accidental death, an Indian Turtle dove killed on the Canning Highway, East Fremantle. Other-

wise, he has never seen a dead dove in a street or railyard. In Fremantle they appear to be entirely unmolested.

D.N.C. has recorded a case of Swamp Harriers (*Circus approximans*), preying upon a Senegal Turtle dove (*W.A. Nat.*, 4: 145).

At Wesley College, South Perth, on March 17, 1947, L.E.S. observed a small bird of prey carrying something. He pursued it, whereupon it dropped the wings of "a first-year Indian Turtle-dove."

Mr. C. L. E. Orton records (*in litt.*) that an observer at Moora picked up 20 Senegal Turtle doves killed around her home by a severe storm in February and she considers that 15 may be left. From information received, Mr. Orton considers that hundreds of Galahs (*Kakatoe roseicapilla*) and Twenty-eights (*Barnardius zonarius*) must have been killed. This heavy mortality among successful native species suggests that conditions were quite exceptional and that the large number of doves killed does not necessarily indicate a susceptibility to this type of hazard.

Mr. A. Kalnins attributes the limited success of the Indian Turtle dove in Katanning to the fact that "they get very tame and are an easy prey for local cats."



Fig. 4.—Distribution of Senegal Turtle dove.

—Del. G. M. Storr

THE TURTLEDOVES IN PERTH

D.L.S., "Relative Abundance of Birds in King's Park," *Emu*, 37: 271, gives the percentage frequency of the Indian Turtle dove as 53.3% and of the Senegal Turtle dove as 30%.

L.E.S. approximates the over-all ratio of 70 Indian Turtle doves to 30 Senegal Turtle doves, but this varies from place to place being 90:10 at Hardy Street, Nedlands; 0:100 at the Zoology Department, University of W.A., and 50:50 at Main Block, University. At Guildford the doves are predominantly Senegal Turtle doves. These discrepancies may be due, he considers, to some ecological preference or may be the outcome of a territorial organisation of roosting flocks.

Counts by E.H.S. at Government Gardens, Perth, gave a ratio of 37:63.

At Wesley College, L.E.S. and P.S. found the Indian Turtle dove much the more frequent of the two species. Between March 18 and March 27, 1947, these observers made six counts working independently. The highest number counted was 98, the lowest 45 and the average of all the counts was 67.5. Counts were made at 1825 hours while the birds were preparing to roost in the pine trees near the College. In October of the same year a young bird, saturated by prolonged rain, was found under the pines and cared for until sufficiently recovered to fly. Before released it was banded with an improvised band. It was seen a fortnight after release and again "considerably later" (but not after May 3, 1948).

(To be concluded)

FAIRY MARTINS IN SOUTH-WESTERN AUSTRALIA

By ERIC H. SEDGWICK, Collie.

The *Birds of Western Australia* (Serventy and Whittell) indicates that the Fairy Martin (*Hylochelidon ariel*) may be encountered widely outside of the heavily forested area of the South-West. This distribution is borne out by my own records.

In the South-West the species appears to be relatively infrequent. S. A. White, *Emu*, 20, p. 124, writing of the South-West generally, described the species as "uncommon" and Orton and Sandland, *Emu*, 13, as "rare in the Moora district". Comparatively few of the published bird lists include the Fairy Martin and little has been written on the species in Western Australia.

On the other hand, C. L. Jenkins in "Birds of Northam," *Emu*, 31, p. 33, described the nests of this species as "not uncommon under culverts and bridges" but noted that the colonies were small as compared with those he had encountered in the Eastern States. Jenkins also mentioned, significantly, that the species is hard to distinguish from the Tree Martin (*H. nigricans*).

This last factor may have had an important effect upon the records; this species could easily be overlooked. To my ear the call is, as stated in the *Birds of Western Australia*, higher pitched than that of the Tree Martin, and I have thought frequently that